IN THE CLAIMS

Cancel claim 1, 6 and 7 without prejudice. Rewrite claims 11, 12, 17, 19 and 23 as follows. A complete listing of all claims is ever presented with those amended herein to affect the changes is as follows:

CLAIMS

1. (Canceled)

2. (Canceled)

3. (Currently Amended) A magnetron comprising: an anode having resonant cavities and coaxially arranged with a cathode about a longitudinal axis; output means including a coaxial line configured to receive energy in one oscillator mode and transmit ~~it~~ said mode as a coaxial transmission mode and to receive energy in another oscillator mode and transmit ~~it~~ said another mode as a cylindrical waveguide mode; and means for at least reducing transmission of energy along the coaxial line in the cylindrical waveguide mode wherein the coaxial line is arranged to receive energy coupled in an axial direction substantially parallel to the longitudinal axis from the resonant cavities; ~~A magnetron as claimed in claim 1~~ wherein the coaxial line has at least one axially extensive slot extending through an outer conductor through which energy in the cylindrical waveguide mode is coupled from the coaxial line.

4. (Previously Presented) A magnetron as claimed in claim 3 and including radiation absorbing material located at said at least one slot to absorb energy radiated by said at least one slot.

5. (Original) A magnetron as claimed in claim 4 wherein the absorbing material is porous alumina impregnated with carbon.

6. (Canceled) The magnetron as claimed in claim 1 wherein said one oscillator mode is the π mode and said another oscillator mode is the π -1 mode.

7. (Canceled) A magnetron as claimed in claim ~~1~~ 3 wherein the coaxial transmission mode is the TEM mode and the cylindrical waveguide is the TE_{11} mode.

8. (Currently Amended) A magnetron as claimed in any preceding claim and including at least one axially extensive reflector slit in the output means for reflecting energy from said another oscillator mode back towards the resonant cavities.

9. (Previously Presented) A magnetron as claimed in claim 8 wherein the at least one coaxially extensive reflector slit is located partially or wholly in a region between the resonant cavities and the end of the coaxial line nearest the anode.

10. (Previously Presented) A magnetron as claimed in claim 8 wherein the at least one coaxially extensive reflector slit is located in the surface of an outer conductor of the coaxial line.

11. (Currently Amended) A magnetron as claimed in claim 8 wherein ~~the~~ said at least one axially extensive reflector slit is located in an inner conductor of the coaxial line.

12. (Currently Amended) A magnetron as claimed in claim 11 wherein ~~the~~ said reflector slit in an inner conductor is extensive therethrough.

13. (Previously Presented) A magnetron as claimed in claim 12 and including the at least one coaxially concave reflector slit and a further reflector slit together comprising two reflector slits in the inner conductor which are extensive therethrough and intersect.

14. (Previously Presented) A magnetron as claimed in any preceding claim wherein the coaxial line is arranged to deliver energy to a waveguide.

15. (Original) A magnetron as claimed in claim 14 wherein the coaxial line terminates in a T-probe.

16. (Previously Presented) A magnetron as claimed in claim 14 wherein the coaxial line includes a discontinuity which reduces transmission along the coaxial line of energy reflected from the waveguide back towards the anode in a cylindrical waveguide mode.

17. (Currently Amended) ~~A magnetron as claimed in claim 1 and~~ A magnetron comprising: an anode having resonant cavities and coaxially arranged with a cathode about a longitudinal axis; output means including a coaxial line configured to receive energy in one oscillator mode and transmit it as a coaxial transmission mode and to receive energy in another oscillator mode and transmit it as a cylindrical waveguide

mode; and means for at least reducing transmission of energy along the coaxial line in the cylindrical waveguide mode wherein the coaxial line is arranged to receive energy coupled in an axial direction substantially parallel to the longitudinal axis from the resonant cavities said magnetron further including a second coaxial line arranged to receive energy in said another oscillator mode coupled in ~~an~~ the axial direction from the end of the anode where a cathode lead is located and transmit the energy as a cylindrical waveguide mode.

18. (Previously Presented) A magnetron as claimed in claim 17 and including at least one axially extensive slot through which energy is coupled from the second coaxial line.

19. (Currently Amended) a magnetron as claimed in claim 18 wherein said at least one slot is located in an outer conductor of the second coaxial line.

20. (Previously Presented) a magnetron as claimed in claim 19 and including radiation absorbing material arranged to receive energy coupled from the second coaxial line through said at least one slot.

21. (Original) A magnetron as claimed in claim 20 wherein said absorbing material is porous alumina impregnated with carbon.

22. (Previously Presented) A magnetron as claimed in any one of claims 17 to 21 and including at least one axially extensive reflector slit in the second coaxial line for reflecting energy from said another oscillator mode back towards the resonant cavities.

23. (Currently Amended) A magnetron as claimed in claim ~~1~~ 3 wherein the anode has an axial length ~~e~~ of greater than ¾ λ wherein λ is the wavelength.

24. (Currently Amended) A magnetron as claimed in claim ~~1~~ 3 wherein the magnetron is an X-band linac magnetron.

25. (Canceled)